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EXAMINER

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ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/674,726	Applicant(s) MOSKOWITZ, SCOTT A.	
	Examiner William Luther	Art Unit 2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 06 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 3-6 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- | | |
|---|--|
| 15) <input type="checkbox"/> Notice of References Cited (PTO-892) | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 20) <input type="checkbox"/> Other: _____ |

*See
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I. BACKGROUND

This communication is further responsive to the Amendment and Request for Reconsideration received September 14, 2000 (the "September 14, Communication"). The September 14 Communication was responsive to the Final Rejection mailed June 6, 2000 (the "June 6, Office Action").

II. TELEPHONIC INTERVIEW: December 5, 2000

The examiner discussed the status of the instant case with counsel Mr. Floyd Chapman (counsel) with respect to 35 U.S.C 112 (Section 112). The examiner informed counsel that he has further reviewed the September 14, Communication with regard to the alleged *instant claim written description* identified by counsel as spanning the specification **pages 38-45** (the "alleged support"). The alleged support was provided by counsel in response to the Section 112 written description rejection of the June 6, Office Action.

The examiner informed counsel that he relies in good faith upon the alleged support for the purpose of the alleged satisfaction of the Section 112 written description requirement. As related to the June 6, Office Action, the examiner indicated to council that **the written description rejection would be withdrawn** at this point in prosecution since there does not currently appear to be sufficient grounds for maintaining such written description rejection. However, for the purpose of a compact issue prosecution, the examiner will sets forth a **provisional** written description rejection since there appears to be a reasonable chance that subsequent questions

related to written description might ^{arise} Nevertheless, the examiner maintains that Section 112 did not appear to be satisfied for the **additional** reasons related in this action. In view of the current evidence of alleged support related to the specification pages 38-45 (i.e. written description facts that were not previously before the examiner), the examiner informed counsel that there are further concerns under Section 112 with regard to paragraph one, and paragraph two as related in this action noting that the examiner relies in good faith on the alleged support, the alleged new invention as claimed, and with respect to the specification as a whole..

III. OFFICE PROCEDURE

With respect to the alleged support, the examiner has concerns as to how the **claim terms** would have been **understood** (second paragraph) by the ordinary artisan at the date of filing (July 2, 1996) for the purpose of **making and using** (first paragraph) the claimed invention. M.P.E.P. 2106 states (emphasis added):

...The second paragraph contains two separate and distinct requirements: (A) that the claim(s) set forth the subject matter applicants regard as the invention, and (B) that the claim(s) particularly point out and **distinctly claim the invention**. An application will be deficient under 35 U.S.C. 112, second paragraph when (A) evidence including admissions, other than in the application as filed, shows applicant has stated that he or she regards the invention to be different from what is claimed, or when (B) the scope of the claims is unclear.

... [as related to] compliance with 35 U.S.C. 112, second paragraph, Office personnel should ..evaluate the application for compliance with the

requirements of 35 U.S.C. 112, first paragraph. The first paragraph contains three separate and distinct requirements:

- (A) adequate written description,
- (B) enablement, and
- (C) best mode.

An application will be deficient under 35 U.S.C. 112, first paragraph when the written description is not adequate to identify what the applicant has invented, or when the disclosure does not enable one skilled in the art to make and use the invention as claimed without undue experimentation...If deficiencies are discovered with respect to 35 U.S.C. 112, Office personnel must be careful to apply the appropriate paragraph of 35 U.S.C. 112.

A. Determine Whether the Claimed Invention Complies with 35 U.S.C. 112, Second Paragraph Requirements

1. Claims Setting Forth the Subject Matter Applicant Regards as Invention

Applicant's specification must conclude with claim(s) that set forth the subject matter which the applicant regards as the invention. The invention set forth in the claims is presumed to be that which applicant regards as the invention, unless applicant considers the invention to be something different from what has been claimed as shown by evidence, including admissions, outside the application as filed. An applicant may change what he or she regards as the invention during the prosecution of the application.

2. Claims Particularly Pointing Out and Distinctly Claiming the Invention

Office personnel shall determine whether the claims set out and circumscribe the invention with a reasonable degree of precision and particularity. In this regard, the definiteness of the language must be analyzed, not in a vacuum, but always in light of the teachings of the disclosure as it would be interpreted by one of ordinary skill in the art. Applicant's claims, interpreted in light of the disclosure, must reasonably apprise a person of ordinary skill in the art of the invention. However, the applicant need not explicitly recite in the

claims every feature of the invention. For example, if an applicant indicates that the invention is a particular computer, the claims do not have to recite every element or feature of the computer. In fact, it is preferable for claims to be drafted in a form that emphasizes what the applicant has invented (i.e., what is new rather than old). In re Dossel, 115 F.3d 942, 946, 42 USPQ2d 1881, 1884 (Fed. Cir. 1997).

After consideration of the claim terms in view of the current record and current alleged support, the examiner believes that the ordinary artisan would not have understood the terms, and/or that to the extent that the terms would have been understood in light of the specification, the ordinary artisan would not have been able to make and use the claimed invention without undue experimentation. The examiner concludes, at this juncture, that the claims are indefinite and/or not enabled, when patentability is considered with respect to the preponderance of the evidence test as related, *inter alia*, by M.P.E.P. 706...

UNIFORM APPLICATION OF THE PATENTABILITY STANDARD

The standards of patentability ...in all cases is the "preponderance of the evidence" test. In other words, an examiner should reject a claim if, in view of the prior art and evidence of record, it is more likely than not that the claim is unpatentable.

IV. THE TEST OF ENABLEMENT

M.P.E.P. 2164.01 states (emphasis added)...

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The standard for determining whether the specification meets the enablement requirement was

cast in the Supreme Court decision of Mineral Separation v. Hyde, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention **undue or unreasonable**? That standard is still the one to be applied. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). Accordingly, even though the statute does not use the term “undue experimentation,” it has been interpreted to require that the claimed invention be enabled so that any person **skilled in the art can make and use the invention without undue experimentation**. In re Wands, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also United States v. Telectronics, Inc., 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) (“The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.”). A patent need not teach, and preferably omits, what is well known in the art. In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). Determining enablement is a **question of law based on underlying factual findings**. In re Vaeck, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991); Atlas Powder Co. v. E.I. du Pont de Nemours & Co., 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984).

1. UNDUE EXPERIMENTATION

The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. In re Certain Limited-Charge Cell Culture Microcarriers, 221 USPQ 1165, 1174 (Int’l Trade Comm’n 1983), *aff’d* sub nom., Massachusetts Institute of Technology v. A.B. Fortia, 774 F.2d 1104, 227 USPQ 428 (Fed. Cir. 1985). See also In re Wands, 858 F.2d at 737, 8 USPQ2d at 1404. The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is **undue**. In re Angstadt, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976).

A. UNDUE EXPERIMENTATION FACTORS

M.P.E.P. 2164.01(a) states (emphasis added)...

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) (reversing the PTO's determination that claims directed to methods for detection of hepatitis B surface antigens did not satisfy the enablement requirement). In Wands, the court noted that there was no disagreement as to the facts, but merely a disagreement as to the interpretation of the data and the conclusion to be made from the facts. In re Wands, 858 F.2d at 736-40, 8 USPQ2d at 1403-07. The Court held that the specification was enabling with respect to the claims at issue and found that "there was considerable direction and guidance" in the specification; there was "a high level of skill in the art at the time the application was filed;" and "all of the methods needed to practice the invention were well known." Id. 858 F.2d at 740, 8 USPQ2d at 1406. After considering all the factors related to the enablement issue, the court concluded that "it would not require undue experimentation to obtain antibodies needed to practice the claimed invention." Id., 8 USPQ2d at 1407. It is improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner's analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole. 858 F.2d at 737, 740, 8 USPQ2d at 1404, 1407.

A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue

experimentation. In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). The determination that "undue experimentation" would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the above noted factual considerations. In re Wands, 858 F.2d at 737, 8 USPQ2d at 1404. These factual considerations are discussed more fully in MPEP § 2164.08 (scope or breadth of the claims), § 2164.05(a) (nature of the invention and state of the prior art), § 2164.05(b) (level of one of ordinary skill), § 2164.03 (level of predictability in the art and amount of direction provided by the inventor), § 2164.02 (the existence of working examples) and § 2164.06 (quantity of experimentation needed to make or use the invention based on the content of the disclosure).

2164.05(a) Specification Must Be Enabling as of the Filing Date

Whether the specification would have been enabling as of the filing date involves consideration of the nature of the invention, the state of the prior art, and the level of skill in the art. The initial inquiry is into the nature of the invention, i.e., the subject matter to which the claimed invention pertains. The nature of the invention becomes the backdrop to determine the state of the art and the level of skill possessed by one skilled in the art.

The state of the prior art is what one skilled in the art would have known, at the time the application was filed, about the subject matter to which the claimed invention pertains. The relative skill of those in the art refers to the skill of those in the art in relation to the subject matter to which the claimed invention pertains at the time the application was filed. See MPEP § 2164.05(b). The state of the prior art provides evidence for the degree of predictability in the art and is related to the amount of direction or guidance needed in the specification as filed to meet the enablement requirement. The state of the prior art is also related to the need for working examples in the specification. The state of the art for a given technology is not static in time. It is entirely possible that a disclosure filed on January 2, 1990, would not have been enabled. However, if the same disclosure had been filed on January 2, 1996, it might have enabled the claims. Therefore, the state of the prior art must be evaluated for each application based on its filing date. 35 U.S.C. 112 requires the specification to be enabling only to a person "skilled in the art to which it pertains, or with which it is most nearly connected." In general, the pertinent

art should be defined in terms of the problem to be solved rather than in terms of the technology area, industry, trade, etc. for which the invention is used. The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public. In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). The state of the art existing at the filing date of the application is used to determine whether a particular disclosure is enabling as of the filing date. Publications dated after the filing date providing information publicly first disclosed after the filing date generally cannot be used to show what was known at the time of filing. In re Gunn, 537 F.2d 1123, 1128, 190 USPQ 402,405-06 (CCPA 1976); In re Budnick, 537 F.2d 535, 538, 190 USPQ 422, 424 (CCPA 1976) (In general, if an applicant seeks to use a patent to prove the state of the art for the purpose of the enablement requirement, the patent must have an issue date earlier than the effective filing date of the application.). While a later dated publication cannot supplement an insufficient disclosure in a prior dated application to make it enabling, applicant can offer the testimony of an expert based on the publication as evidence of the level of skill in the art at the time the application was filed. Gould v. Quigg, 822 F.2d 1074, 1077, 3 USPQ2d 1302, 1304 (Fed. Cir. 1987). In general, the examiner should not use post-filing date references to demonstrate that the patent is non-enabling. Exceptions to this rule could occur if a later-dated reference provides evidence of what one skilled in the art would have known on or before the effective filing date of the patent application. In re Hogan, 559 F.2d 595, 605, 194 USPQ 527, 537 (CCPA 1977). If individuals of skill in the art state that a particular invention is not possible years after the filing date, that would be evidence that the disclosed invention was not possible at the time of filing and should be considered. In In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513-14 (Fed. Cir. 1993) an article published 5 years after the filing date of the application adequately supported the examiner's position

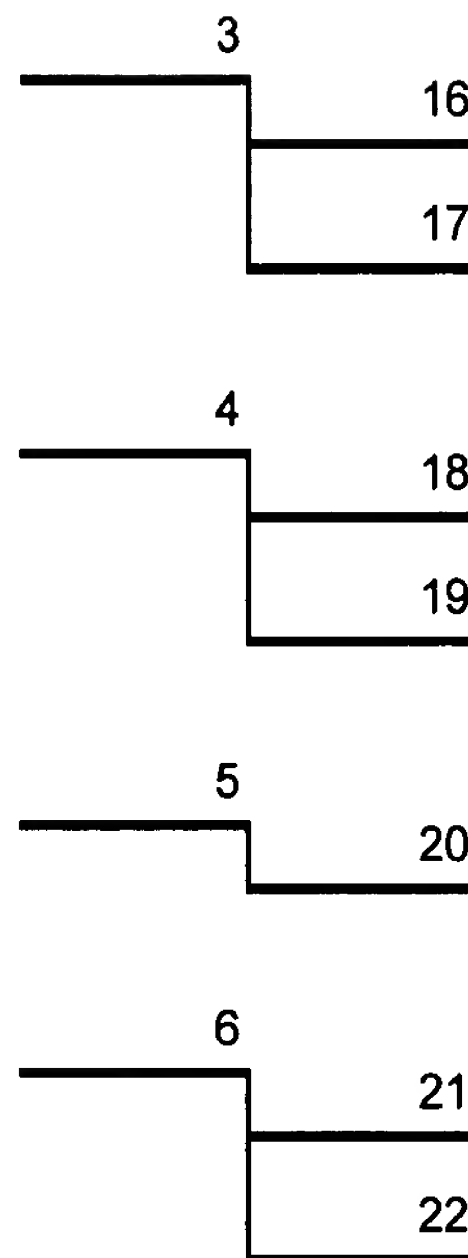
that the physiological activity of certain viruses was sufficiently unpredictable so that a person skilled in the art would not have believed that the success with one virus and one animal could be extrapolated successfully to all viruses with all living organisms. Claims not directed to the specific virus and the specific animal were held nonenabled.

2164.05(b) Specification Must Be Enabling to Persons Skilled in the Art

The relative skill of those in the art refers to the skill of those in the art in relation to the subject matter to which the claimed invention pertains at the time the application was filed. Where different arts are involved in the invention, the specification is enabling if it enables persons skilled in each art to carry out the aspect of the invention applicable to their specialty. In re Naquin, 398 F.2d 863, 866, 158 USPQ 317, 319 (CCPA 1968). When an invention, in its different aspects, involves distinct arts, the specification is enabling if it enables those skilled in each art, to carry out the aspect proper to their specialty. "If two distinct technologies are relevant to an invention, then the disclosure will be adequate if a person of ordinary skill in each of the two technologies could practice the invention from the disclosures." Technicon Instruments Corp. v. Alpkem Corp., 664 F. Supp. 1558, 1578, 2 USPQ2d 1729, 1742 (D. Ore. 1986), *aff'd in part, vacated in part, rev'd in part*, 837 F. 2d 1097 (Fed. Cir. 1987) (unpublished opinion), appeal after remand, 866 F. 2d 417, 9 USPQ 2d 1540 (Fed. Cir. 1989). In Ex parte Zechnall, 194 USPQ 461 (Bd. App. 1973), the Board stated "appellants' disclosure must be held sufficient if it would enable a person skilled in the electronic computer art, in cooperation with a person skilled in the fuel injection art, to make and use appellants' invention." 194 USPQ at 461.

V. ALLEGED NEW INVENTION

1. THE CLAIM TREE



2. THE CLAIMS

3. A computerized method of managing a bandwidth securitization instrument, comprising the steps of:

dividing a total bandwidth resource unit into a plurality of component bandwidth resource units;

representing a first component bandwidth resource unit with the bandwidth securitization instrument;

receiving at a computer system a value associated with the first component bandwidth

resource unit; and

assigning a value to the bandwidth securitization instrument without human intervention based on the received value associated with the first component bandwidth resource unit.

4. A computerized method of exchanging as a bandwidth securitization instrument comprising the steps of:

dividing a total bandwidth resource into a plurality of component bandwidth resource units;

representing a first component bandwidth resource unit with the bandwidth securitization instrument;

receiving at a computer system instructions to transfer the bandwidth securitization instrument from a first party to a second party; and

transferring the bandwidth securitization instrument from the first party to the second party without human intervention.

5. A computerized method of assigning a convenience premium to a bandwidth securitization instrument, comprising the steps of:

dividing a total bandwidth resource into a plurality of component bandwidth resource units;

representing a first component bandwidth resource unit with a bandwidth securitization instrument;

estimating a demand at a given moment in time for the component bandwidth resource unit; and

assigning a value to the bandwidth securitization instrument without human intervention, based on the estimated demand for the first component bandwidth resource unit.

6. An electronic method of assigning a value to a bandwidth securitization instrument, comprising the steps of:

dividing a total bandwidth resource into a plurality of component bandwidth resource units;

representing a first component bandwidth resource unit with the bandwidth securitization instrument;

receiving a minimum standard price associated with the first component bandwidth resource unit;

estimating a convenience premium for the bandwidth security instrument with respect to the minimum standard price;

determining a probability of failure with respect to the use of first component bandwidth resource;

determining an exercise period for the bandwidth security instrument corresponding to a time during which the first component bandwidth resource may be used; and

assigning a value to the bandwidth securitization instrument at an electronic market system based on the received minimum standard price, the estimated convenience premium, the determined probability of failure and the determined exercise period.

16. The method of claim 3, further comprising the steps of:

receiving at a computer system an offer from a first party to sell the bandwidth securitization instrument;

receiving at the computer system an offer from a second party to purchase the bandwidth securitization instrument; and

transferring the bandwidth securitization instrument from the first party to the second party without human intervention.

17. The method of claim 3, wherein the bandwidth securitization instrument is a cryptographically secure computer record.

18. The method of claim 4, wherein said step of receiving instructions to transfer the bandwidth securitization instrument comprises the steps of:

receiving at the computer system an offer from the first party to sell the bandwidth securitization instrument; and

receiving at the computer system an offer from the second party to purchase the bandwidth securitization instrument.

19. The method of claim 4, wherein the bandwidth securitization instrument is a cryptographically secure computer record.

20. The method of claim 5, wherein the bandwidth securitization instrument is a cryptographically secure computer record.

21. The method of claim 6, wherein said step of assigning a value is performed according to the equation: $V = (1 - Pf)(VI + VT + VC)$, where V represents the value, Pf represents the probability of failure, VI represents the minimum standard price, VT is a value associated with the exercise period and VC represents a convenience premium.

22. The method of claim 6, wherein the bandwidth securitization instrument is a cryptographically secure computer record.

VI. THE ALLEGED SUPPORT/WRITTEN DESCRIPTION

The following excerpt is taken from the alleged support per the September 6, Communication, citing the specification pages 38-45 (bold in original, ~~the size emphasis is added~~) ...

Defining the Value of Bandwidth Rights

It is an object of this invention to create a trading instrument which will break bandwidth resources into discrete, usable component pieces, and allow an electronic market system to set a price for this scarce commodity which sets an equilibrium level of supply and demand. The net effect of this instrument, and its trading system, will be to efficiently apportion bandwidth to users who wish to download or upload valuable information, in whatever form it takes. Bandwidth affects the speed of information transfer. If more bandwidth is used, speed increases, and the transfer is accomplished in less time. If an individual instance of this instrument is a bandwidth right, it can be observed that several factors will affect its value:

Intrinsic Value

This value is measured versus a minimal standard telecommunications cost. If there is a single underlying telecommunications cost to the owner of the right of X dollars per minute, let min 0 represent the number of minutes it takes to download the information using the minimal bandwidth, and min 1 represent the number of minutes a to transfer the information at the bandwidth represented by this right. Note that $\text{min } 0 \geq \text{min } 1$.

Then the intrinsic value $VI = X \times (\text{min } 0 - \text{min } 1)$, or the amount of money to saved in telecom costs at the higher bandwidth. The intrinsic value can be

negative, which would imply a compensating premium placed on the time saved by using the more expensive transport.

Percentage Chance of Failure

This probability recognizes the generally unreliable nature of the current telecommunications and transmission mediums as well as underlying computer systems. Rather than be burdened with the task of solving all of the "bugs" in a given piece of commercial software, it would be better to account for failure in

the valuation. This value could be adjusted over time, as the failure probability of a system becomes more apparent, or changes. In short, this represents the percentage chance a user cannot exercise their right. It affects the expected value of the right. In this baseline approach, if the probability of failure is P_f , where $0 \leq P_f \leq 1$, and the value of the right is V_0 , in the absence of failure, then $V_f = (1 - P_f)V_0$.

Convenience Premium

This represents some premium, VC that a person is willing to pay to transfer their information within a specified period of time (i.e. "now" or "in the next 10 minutes"). This premium is likely to come out as the market sets the price for a right. If there is a formula for what the price should be, then the premium is simply the difference between the result of that formula, and the to actual market price. This really measures the balance between supply and demand. The more demand in excess of supply, the higher C will rise. VC is then a function of supply and demand.

$$V_{\text{real}} = V_{\text{theoretical}} + VC$$

Time Value

This is a function of the exercise period of the bandwidth right. It is proportional to P_f , since more time allows for recovery from an individual failure to transfer. There are two components of time, over what period a transfer can be initiated and for how long the transfer can last once it is initiated. Note that

this is made more complex by congestion factors. For instance, if a user has a right for 10,000 kbps for 10 seconds, and the user wants to transfer 100,000 kb, it is not likely that the transfer can be done in exactly 10 seconds. Protocol overhead and congestion will add some increment of time. It is advisable to

leave room in the exercise period for these factors, rather than trying to value

the time value in some manner which accounts for these transient conditions.
Thus:

$$V = (I - Pf)(VI + VT + VC)$$

$$\text{or } V = (1 - Pf)((X(\text{min}0 - \text{min}1) + VT) + VC),$$

The convenience premium, VC, should be independent of all other values (except V). to

The equation behaves as such:

With increased failure probability decreasing rights value, independent of other variables, while increased demand relative to supply would drive up VC. We might try to compute VC by accounting for known demand and supply values, and in fact, it is of vital importance to know the supply, and to allocate it 15 so that any right issued can be exercised within its exercise period.

Additionally, it is observed that a method is needed to allocate supply based on demand which accounts for unused rights. In other words, the system needs to over allocate supply to some degree, knowing that some rights may go unexercised, so that demand is filled as much as possible. This 20 is similar to airlines' practice of over booking flights.

Some mechanism must be in place to prevent attacks on the system, by a party, who, in effect, tries to corner the market in bandwidth, with no intention of using it, so that it goes unused. Naively, one would think that since one has to pay for the bandwidth, why would someone want to corner the market? Although bandwidth is not free, it should only comprise a small fraction of the value of the information to be transferred, and so this is not an unthinkable situation. The likeliest preventive measure is the existence of competition in transmission.

Another option is the potential need to necessitate a secondary market for the trading of bandwidth, which could be divided up by a trading syndicate, and traded on a secondary basis to users. In a manner of operations, telecommunications companies perform this role between national telecommunications systems to facilitate international phone usage. But the difference with the system envisioned in the present system is that "any" user could buy bandwidth rights at times of low demand, and hope to sell

them at a profit in times of higher demand. This would seem to imply the exchange itself should do some proprietary trading in this manner, both to profit, and to ensure some bandwidth is available for sale to users when they need it. This will have a purpose to serve in making the market efficient in the future.

Bandwidth rights instruments are likely to be highly localized to specific subnets. Especially since certain types of connections may be available only from certain exchanges, and since failure probabilities are likely to vary with specific hardware, operating systems, and service providers. Additionally, the basic valuation equations above do not address telecommunications costs across various types of lines. This problem at least, might be solved by active maintenance of cost tables, designation codes for types of lines, and the designation of a low cost standard. The problem of moving rights between exchanges is made more difficult since supply/demand planning for one exchange will not translate to another, unless some means for interconnecting exchanges is developed, and exchange bandwidth planning is global. The race by many parties to link users to the INTERNET via varying access links(modem) including ISDN, POTs, cable, may further the need for common bandwidth pricing. What is clear is that the basic structure of the present to invention would facilitate such planning to the benefit of all market participants: telecoms providers, INTERNET access companies, users and publishers as well as more general aggregators of content and bandwidth such as, phone companies, cable companies and satellite companies intending on providing services across multifarious line types.

Bandwidth Rights Accounting and Clearing

If a bandwidth right is securitized, the creation and supply of certificates, made unique by cryptographic methods to manage them, will also be necessary. Transferring certificates between individuals is complicated and unnecessary. Following the general principles of the securities clearing model described above seems to be in order. In this case, the exchange needs to create and manage an account for each party that can own or trade bandwidth rights. Additionally, a method for authenticating the party is required. With these two elements, a trading market can be implemented by the following methods:

The exchange creates and manages a supply of uniquely distinguished bandwidth rights certificates. These certificates are good for a specific period only. They may traded over the course of time, anywhere from the moment they are created to the expiration time. It is questionable whether a right

should be exercisable once it is clear that even if a transfer is initiated, it cannot be completed given that right only. However, consider that the right is usable, but its value decreases rapidly as it approaches expiration (i.e. value is based on time left, not total transfer time). Once a certificate is expired it is deleted. Hash values incorporating a time-stamp could be used to serialize certificates. Such a cryptographic method is well noted in the art. US Pat: No 5,136,646 and 5,136,647 ("Digital Document Time-Stamping With Catenate Certificate" and "Method For Secure Time-Stamping Of Digital Documents" respectively) describe methods for cryptographic time-stamping. The exchange creates a central hub for planning bandwidth supply, accounting, and disseminating pricing information. Client-side software will value the rights relative to a particular user's needs, and used by any party trading rights. A seller creates a SELL advertisement, which is entered into the "exchange" The exchange verifies that the seller actually holds the right in their account. A buyer then enters a BUY offer against the sell advertisement.

The exchange validates the buyers, and then clears the transaction, transferring money from the buyer's payment method (credit card, etc.) to the seller's account, and the right to the buyer's account. The unbundled right may be so infinitesimal that the actual cost of the right must be bundled with the underlying content or information being sought. The rights could also be bound to underlying titles. This may be similar to attaching sales taxes, handling charges, and credit card use charges that are typically bundled with the cost of a given physical goods purchase.

VII. REJECTION UNDER SECTION 112

Title 35 Section 112 (paragraphs one and two) state (emphasis added)...

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly

pointing out and distinctly claiming the subject matter which the applicant regards as his invention....

1 PROVISIONAL WRITTEN DESCRIPTION

Claim 3-6 and 16-22 are **provisionally** rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Considering claim 3, no adequate written description support is found for each of the following:

- computerized;
- managing;
- a bandwidth;
- securitization;
- instrument;
- dividing;
- a total;
- bandwidth;
- resource unit; into
- a plurality of component bandwidth resource units;
- representing;
- a first component bandwidth resource unit; with
- the bandwidth;
- securitization;
- instrument;
- receiving;
- a computer system;
- a value;
- associated;
- with the first component bandwidth resource unit; and
- assigning;
- a value;
- to the bandwidth securitization instrument;
- without human intervention;

- based on;
- the received value;
- associated;
- with the first component bandwidth resource unit.

Considering claim 4, no adequate written description support is found for each of the following:

- A computerized method; of
- exchanging; as
- a bandwidth securitization instrument; comprising the steps of..
- dividing;
- a total;
- bandwidth;
- resource; into
- a plurality of
- component bandwidth resource units;
- representing;
- a first;
- component;
- bandwidth;
- resource;
- unit; with
- the bandwidth;
- securitization;
- instrument;
- receiving; at
- a computer;
- system;
- instructions; to
- transfer;
- the bandwidth securitization instrument;
- from;
- a first party;
- to a second party; and
- transferring;
- the bandwidth securitization instrument;
- from the first party;
- to the second party;
- without human intervention.

Considering claim 5, no adequate written description support is found for each of the following:

- A computerized method; of
- assigning;
- a convenience premium; to
- a bandwidth securitization instrument, comprising the steps of;
- dividing;
- a total bandwidth;
- resource;
- into a plurality; of
- component;
- bandwidth resource units;
- representing;
- a first;
- component bandwidth resource unit;
- with a bandwidth securitization instrument;
- estimating;
- a demand;
- at a given moment;
- in time;
- for the component bandwidth resource unit; and
- assigning;
- a value;
- to the bandwidth securitization instrument;
- without human intervention;
- based on the estimated demand for the first component bandwidth resource unit.

Considering claim 6, no adequate written description support is found for each of the following:

- An electronic method of;
- assigning;
- a value; to
- a bandwidth;
- securitization;
- instrument, comprising the steps of;
- dividing;
- a total;
- bandwidth resource;
- into a plurality of;
- component;
- bandwidth resource units;
- representing;
- a first;
- component;
- bandwidth;

- resource;
- unit; with
- the bandwidth securitization instrument;
- receiving;
- a minimum;
- standard price;
- associated; with
- the first component bandwidth resource unit;
- estimating;
- a convenience premium; for
- the bandwidth security instrument;
- with respect to the minimum standard price;
- determining;
- a probability;
- of failure; with respect to
- the use of first component bandwidth resource;
- determining;
- an exercise period;
- for the bandwidth security instrument;
- corresponding to;
- a time;
- during which;
- the first component bandwidth resource;
- may be used; and
- assigning;
- a value;
- to the bandwidth securitization instrument at;
- an electronic market system;
- based on;
- the received;
- minimum standard price;
- the estimated convenience premium;
- the determined probability of failure; and
- the determined exercise period.

Considering claim 16, no adequate written description support is found for each of the following:

- receiving; at
- a computer system;
- an offer; from
- a first party;
- to sell;

- the bandwidth securitization instrument;
- receiving;
- at the computer system;
- an offer;
- from a second party;
- to purchase;
- the bandwidth securitization instrument; and
- transferring;
- the bandwidth;
- securitization instrument;
- from the first party;
- to the second party;
- without human intervention.

Considering claim 17, no adequate written description support is found for each of the following:

- the bandwidth securitization instrument;
- is a cryptographically secure computer record.

Considering claim 18, no adequate written description support is found for each of the following:

- said step of receiving instructions to transfer the bandwidth securitization instrument comprises;
- receiving;
- at the computer system;
- an offer;
- from the first party;
- to sell;
- the bandwidth securitization instrument; and
- receiving;
- at the computer system;
- an offer;
- from the second party;
- to purchase;
- the bandwidth securitization instrument.

Considering claim 19, no adequate written description support is found for each of the following:

- the bandwidth securitization instrument;
- is a cryptographically secure computer record.

Considering claim 20, no adequate written description support is found for each of the following:

- the bandwidth securitization instrument;
- is a cryptographically secure computer record.

Considering claim 21, no adequate written description support is found for each of the following:

- assigning;
- a value; is
- performed;
- according to;
- the equation: $V = (1-Pf)(VI + VT + VC)$;
- where V represents the value;
- Pf represents the probability of failure;
- VI represents the minimum standard price;
- VT is;
- a value;
- associated with;
- the exercise period; and
- VC represents a convenience premium.

Considering claim 22, no adequate written description support is found for each of the following:

- the bandwidth securitization instrument is;
- a cryptographically secure computer record.

3. REJECTION UNDER SECTION 112, 2ND PARAGRAPH

Claims 3-6 and 16-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Considering claim 3, with respect to the alleged written description as compared to what the ordinary artisan at the time of filing would have recognized, the claim scope appears to be unclear and thus indefinite under Section 112 second paragraph. The meaning/scope of the following terms appears to be contrary/inconsistent with the meanings that would have been

understood by the ordinary artisan at the time of filing. For e.g., it is not understood what/how applicant is defining the term "bandwidth" with respect to the ordinary use/meaning. Further, it is not understood what "securitization" and "instrument" are supposed to have meant to the ordinary artisan at the time of filing. Clarification is requested. Likewise, clarification is requested as to what is a "resource" and a "unit" as was supposed to have meant to the ordinary artisan at the time of filing. Likewise, the term "component". Likewise, the same terms for claim 4 as well as the term "instruction". Clarification is requested. Likewise, the same terms when appropriate with respect to claim 5, as well as the term "a convenience premium" as was supposed to have been understood by the ordinary artisan at the time of filing. Likewise, claims 6 and 16-22. Clarification is requested.

2.ENABLEMENT

Claims 3-6 and 16-22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Given the meaning of the terms enumerated above in the section 112 rejection with respect to the provisionally rejected terms as related to the alleged written description, the examiner cannot conclude that the ordinary artisan could have made and used the alleged new invention in view of the specification alone. The examiner concludes that the ordinary artisan would have been confused with respect to the specification taken as a whole and the claims taken as a whole. It appears that the ordinary artisan would not have understood what was being

claimed (i.e. it appears that the specification was written so far above the level of skill of the ordinary artisan, absent of working examples, explanation for how bits would be manipulated, received, transmitted, transferred, in a working example, would have required undue experimentation).

VIII. PROVISIONAL RESTRICTION

The examiner currently examines/considers the pending claims with respect to the "independent and [patentably] distinct" standard as related to the alleged pending claim support. It is understood that if applicant's amend the pending claims, or point to substitute support for pending claims that so that the pending claims (not currently understood) are defined by patentably distinct features (i.e. non-obvious) (e.g. capable of separate sale/ use/manufacture) the examiner hereby notifies applicants that the claim would be subject to election by original presentation for the purpose of minimizing undue burden of examination on the PTO.

IX. CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Luther whose telephone number is (703) 308-6609.

William Luther
Primary Examiner
December 6, 2000

A handwritten signature in black ink, appearing to read 'W. Luther', with a large, stylized loop at the end.